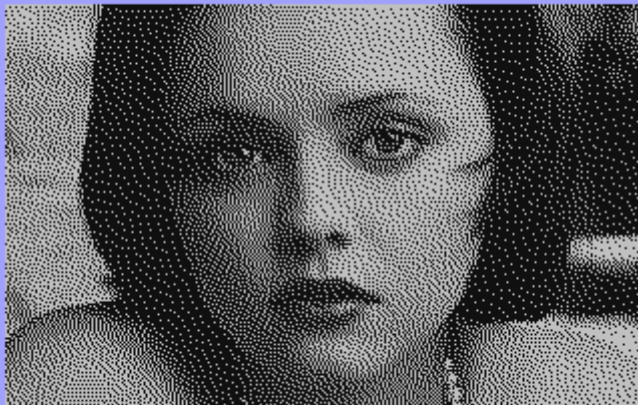


Amiga 5



“Cristina Ricci”

Vice snapshot with CCS64 palette

**Made with the GIMP from a CR photo
and converted to C64 320x200
HiRes Mode Bitmap
by Stefano Tognon
in 2003**

“Think to something [Engines]”

...



Free Software Group

OS₂in 5
version 1.00
11 January 2004

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Editorials

Stefano Tognon <ice00@libero.it>

Hi, again.

This number is completely devoted to music engines.

As you can see, the second part of music engines searching is ready. We can so look at a big database of engines and we learn how to add new engines signature to it.

The second article is related to a new project I started: High Voltage Music Engines Collection. This project collects and give credits to (all) the available C64 tools for made music.

The other new thing to say is that I had take the challenge of ripping Marble Madness. It's now only question of time, very long too, but I want to made the rip!

The used engine is a big waste of code, but I see some music patterns into it that can give me the right street for making the rip.

Expect an article about it in a next issue.

Finally, I'm planning to do another reverse engineering work about a music driver. However this is only in an alpha stage, but it is a good starting.

I'm sorry for releasing this number after about a month of planned date, but there was some trouble:

- No Christmas holiday this year :(
- I have decided to unify my actual 2 most used Linux distro (one for networking and one for developing) in a totally new one, so this required many times for recreating my custom options that comes out by many years of use.
- Lot of activity in the engines like you can read in this number that consume many time

However, there is a good things that compensate for this: you can read an interview with Chris Huelsbeck that it is just arrived, so the planned interview for this number will skip to the next.

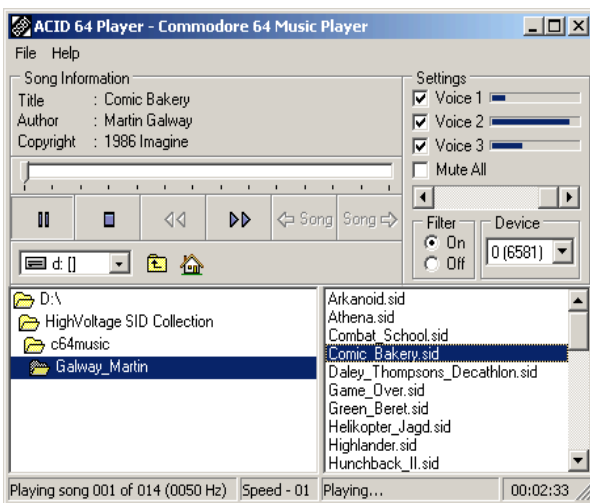
Bye
S.T.

News

Some various news of players, programs , competition and hardware:

- Acid64 Player 1.0
- amaroK 0.5.1
- composers.c64.org updated
- SID2TIA
- SID in-depth information site
- Goatraker 1.4C/D/F
- Sidplay2/w
- SidAsm 1.0
- HVSC 5.4
- Hardsid PCI
- JC64Dis beta 1
- SIDPlayer 4.3
- Resid 0.15
- The SID COMPO III
- HVSC 5.5
- HVSID player plugin v3
- NinjaTracker v1.05

Acid64 Player 1.0



ACID 64 player is a Commodore 64 music player for Windows that will play SID tunes on a HardSID card or Catweasel MK3 PCI/Flipper.

It emulates the MOS 6510 micro processor to run the code of a SID tune and controls the cards for playing the music on a real 6581 or 8580 SID chip.



Features:

- Supports all HardSID cards
- Emulation of all 6510 instructions including all undocumented opcodes
- Exact timing for normal speed and multi speed songs
- Note press indicator bar for each voice
- Up to 20 times fast forward
- Mute & solo voices and change of master volume
- Toggle filter on/off
- Switch easy to different HardSID device
- Drag & drop support for multiple files
- Minimize to system tray for background playing
- Go back and forward in the history of played songs

Released on 30 July 2003 by Wilfred Bos, you can download the player from <http://www.acid64.com>

amaroK 0.5.1

amaroK is a new media player for KDE.

There are many media players around these days, true. What's missing from most players is a user interface, that doesn't get in the way of the user.



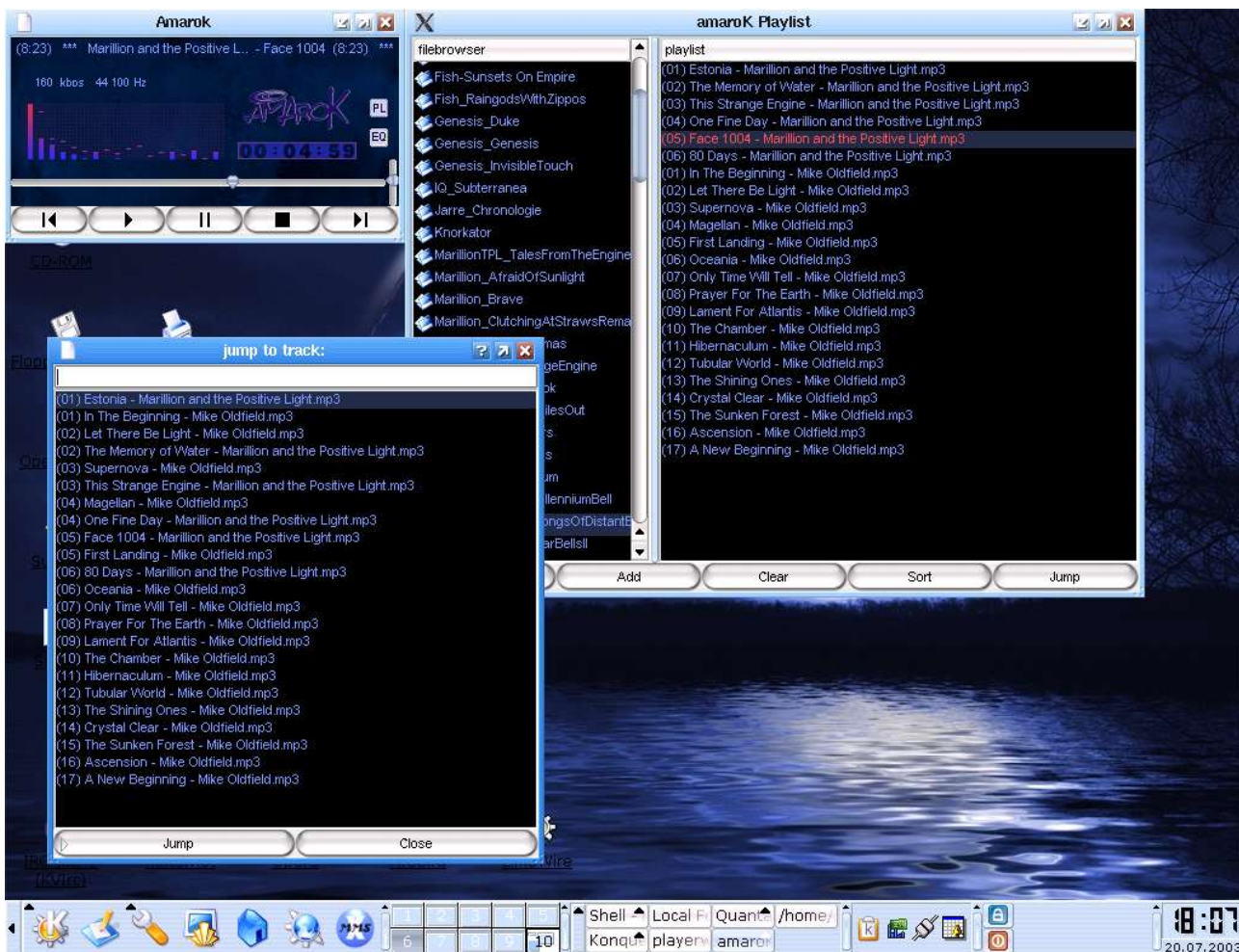
How many buttons do you have to press for simply adding some new tracks to the playlist?

amaroK tries to be a little different, providing a simple drag and drop interface, that really makes playlist handling easy.

- fresh playlist concept, very fast to use, with drag and drop
- plays all formats supported by aRts, including mp3, ogg, audio CDs, streams
- audio effects, like reverb and compressor
- compatible with the .m3u and .pls formats for playlists
- nice GUI, integrates into the KDE look, but with a unique touch

The last stable version of the player is 0.5.1, but the new 0.6.0 is being developed.

The good thing about this project is that there is a plugin for reproducing sid files.



The Mark Kretschmann's project is available at: <http://amarok.sourceforge.net/>

composers.c64.org updated

The composers page is now converted to a database, with a totally new layout. It was added 51 new composers, and better photos for 28 composers, for a total of 328 composers.

composers.c64.org

The new system is very fast in comparison to the previous and more better organized.

SID2TIA

Maybe all Atari users around had dreams about listen some Sid tunes into their computer.

Now, Cybergoth have wrote an utility that convert sid music into the Atari 2600 VCS's chip, with very good result.

The utility use the TinySID engine and after every player call, the sid registers contents are matched as better as possible with TIA registers.

Look at this thread <http://www.atariage.com/forums/viewtopic.php?t=33036> or go to see <http://home.arcor.de/cybergoth/>

SID in-depth information site

There is a very interesting site about Sid that you may visit: <http://www.kubarth.de/sid>

You can found technical articles, sid history, die photos, link to hardware devices that use the sid chip and lot of software players.

The project need your help in founding new resources about the sid, so don't hesitate to take a look.



Goattracker 1.4c/d/e/f

Released on 20 September 2003 the version 1.4c and just one month later the version 1.4d of the Cadaver's C64 tracker that run into a PC computer.

Goattracker (both mono and stereo versions) was updated for better hardrestart handling (wavetable also executed on hardrestart frame) and possibility for manual fadein/out of music.

The 1.4d version contains bug fixes for \$D418 and arpeggio execution.

Version 1.4e contains the resid-015 engine and was released in December and version 1.4f released in January contains Funktempo capability.

Download the mono version at <http://covertbitops.c64.org/tools/goattrk.zip>, and the stereo version at <http://covertbitops.c64.org/tools/gstereo.zip>

Sidplay2/w

On 23 September 2003, the Windows sid player Sidplay2/w was released.

In this version you can find:

- It is now possible to change subtune in the playlist edit for tunes with over 6 subtunes
- The playlist view keeps selection after the user chooses a new tune to play
- File|Open and File|Save remembers the file type from last run
- Lots of libsidplay2 emulation improvements. The major ones are:
 - + VIC emulation improved, adding cycle-stealing
 - + Support for BASIC tunes
 - + Real C64 environment improved

Download the player from: <http://www.student.nada.kth.se/~d93-alo/c64/spw/>

SidAsm 1.0

On 30th September 2003 Gufino released SidDasm V1.0. The program produces disassembler output of SID music files and works good for about 99% of sid files. It is able to separate data from code, so try it. Both DOS version & Linux version are available for download:

<http://www.student oulu.fi/~loorni/covert/tools/siddasm1.zip>

<http://www.student oulu.fi/~loorni/covert/tools/siddasm1.tar.gz>

HVSC 5.4

On 9 October 2003, the High Voltage SID Collection Update #36 was released.

After this update, the collection should contain 21,272 SID files!

This update features (all approximates):

- 566 new SIDs
- 265 fixed/better rips
- 52 fixes of PlaySID/Sidplay1 specific SIDs
- 9 repeats/bad rips eliminated
- 283 SID credit fixes

Download the update and the tools from <http://www.hvsc.c64.org>

Hardsid PCI

On 15/10/2003 the HardSid single-chip card was released at <http://www.hardsid.com>

You can read a complete review at

<http://www.cbmzone.com/cgi-bin/index.pl?action=viewnews&id=21>



JC64Dis beta 1

Released the new version of the Java disassembler JC64Dis.

JC64Dis is able to disassembly both prg and sid files, giving comment to know memory location used by the programs. Also, it is able to give the instructions flow of sidplayer MUS file.

From this version, it uses a memory state file produced by patched SIDLD (Sid length detector), so sid file can be disassembled knowing the memory location used for code and for data.

Download from <http://www.sf.net/projects/jc64>

SIDPlayer 4.3

Released in early 2003 the new version of Christian Bauer sid player at <http://www.uni-mainz.de/~bauec002/SPMain.html>

This player use SDL library and is so easy to compile in every operating system. The last version had:

- Added support for Catweasel SID hardware in SDL version (use option "--cwsid on"), CIA timer speed control now actually works

The program is affected by a bug that prevent setting IRQ during the *play* section (some Master-composer tunes did not sound correctly).

In the CVS repository there is already a fixed version.

Resid 0.15

The last know bug of the Resid engine is now removed. This bug affects the Delay ADSR bug duration.

You can download the stuff here:

<ftp://ftp.funet.fi/pub/cbm/crossplatform/emulators/resid/resid-0.15.tar.gz>

According to Dag Lem, try to listen to these tunes with the new engine that where for sure affected by the previous engine bug:

/VARIOUS/A- F/Behdad_Arman/Revenge.sid

/VARIOUS/M- R/Mixer/SurSumTheme.sid

The SID COMPO III



Even this year at <http://www.c64.sk> there was the Sid Compo (from 8 october to 8 november).

This year there was anonymous submission and composers jury voting system.

You can download the 43 tunes (in PSID or C64 format), read the comments, and the final classifications at: <http://www.c64.sk/index.php?content=article.php&articleid=80&id=1675>

Here I just report the two classifications:

Yury Rank:

(191 pts) "Floatee" 3:30 (8580) by Kamil Wolnikowski (Jammer) [2003 Multistyle Labs/Samar]
(181 pts) "Shining Hour" 4:37 (8580) by Stellan Andersson (Dane) [2003 Crest]
(158 pts) "Cybersoap" 4:58 (6581) by Timo Taipalus (Abaddon) [2003 Damage/FairLight]
(151 pts) "One Hit Wonder" 2:35 (8580) by Alexander Rotzsch (Fanta) [2003 Fanta]
(145 pts) "Downtown Connection" 3:22 (8580) by Michal Hoffmann (Smalltown Boy) [2003 MultiStyle Labs]
(131 pts) "Illumination" 3:34 (6581) by Lasse Öörni (Cadaver) [2003 Covert Bitops]
(120 pts) "Downstairs Funk" 2:25 (6581) by Glenn Rune Gallefoss [2003 SHAPE/Blues Muz']
(96 pts) "MUmaid" 4:52 (8580) by Vincent Merken (Vip) [2003 ViruZ]
(87 pts) "Celebrating Samhain" 4:06 (6581) by Rafal Kazimierski (Asterion) [2003 Samar]
(80 pts) "Kingston's Sick" 2:50 (8580) by Ronny Engmann (dalezy) [2003 Creators]
(79 pts) "Short Metamorphosis" 2:50 (8580) by Stefan Uram (Orcan) [2003 Orcan]
(73 pts) "Dropping the Dishes" 3:05 (8580) by Gerard Hultink [2003 Gerard Hultink]
(68 pts) "My Output Is Danceable" 4:05 (8580) by Mark Waldaukat (Heinmukk) [2003 Salva Mea]
(66 pts) "O Boy" 2:24 (6581) by Yodelking & UL-Tomten [2003 Defiers]
(53 pts) "The-End" 3:30 (6581) by Kent Hofling (Kenho) [2003 4ba]
(51 pts) "Nekkid On All Fours" 2:44 (6581) by Marc van den Bovenkamp (No-XS) [2003 Toondichters]
(51 pts) "Forgotten 80's" 2:23 (8580) by Marcin Romanowski (Sidder) [2003 MultiStyle Labs/Role]
(51 pts) "Gradius Supernova '86" 4:42 (8580) by Luca Carrafiello (Luca) [2003 FIRE]
(51 pts) "Monolith" 6:35 (8580) by Mark Thomas Ross (MTR1975) [2003 FunkScientist Productions]
(50 pts) "Nipponesque xperience" 2:43 (6581) by Daniel M. Gartke (Turtle) [2003 The Demented]
(41 pts) "The Final Dance" 3:35 (8580) by Arman Behdad (Intensity) [2003 Onslaught/Cosine]
(32 pts) "Intelligent_Technology" 3:46 (8580) by Pontus Olsson (pOnToNiuS) [2003 pOnToNiuS]
(30 pts) "Purity" 2:24 (6581) by Aleksy Eben [2003 CNCD]
(29 pts) "Pure" 2:01 (6581) by Bekir Ogurlu (Slowhand) [2003 Independent]
(27 pts) "Le Tartar and Pretzelism" 6:40 (8580) by Stephan Drost (Pater Pi) [2003 Church 64]
(23 pts) "Equation of Time" 2:37 (6581) by Kursad Karamahmutoglu(Hydrogen) [2003 Bronx]
(22 pts) "DataDataDataData" 3:55 (6581) NTSC by Akira K [2003 Kiken Corporation]
(19 pts) "Divine Unconcern" 4:43 (6581) by Mariusz Cichy (Borgon) [2003 Borgon]
(19 pts) "Lost Memories " 3:04 (6581) by Manuel Müller (CJ Rayne) [2003 X-Style]
(18 pts) "Chantelle" 4:06 (6581) by Andy Vaisey [2003 FunkScientist Productions]
(18 pts) "Dark Eagle" 3:10 (8580) by Trond Jensen (TDS) [2003 Creators]
(15 pts) "Jazzy" 1:55 (6581) by Carl Gustaf Liebe (Yaemon) [2003 Depredators Music Division]
(11 pts) "Eire Outcast" 2:05 (6581) by Anders Carlsson (Zapac) [2003 Zapac]
(8 pts) "Archnial" / 4:55 (6581) by Jaymz Julian (A Life in Hell) [2003 Warriors of the Wasteland]
(8 pts) "Sidcompo 3" 2:02 (6581) by maktone & Jonathan (natanl) [2003 FairLight]
(6 pts) "Choppy" 2:01 (6581) by Oliver Viebrooks (Six) [2003 Dark Lords of Chaos]
(6 pts) "Compus_Mentus" 3:45 (8580) by Andrew Fisher (Merman) [2003 People of Liberty/Role]
(4 pts) "Tauh" 2:19 (6581) by Pietari Toivonen (hukka) [2003 hukka]
(4 pts) "Trusted People" 5:37 (8580) by Richard Bayliss [2003 Civitas]
(0 pts) "Lichtblick" 4:15 (8580) by Robert Dörfler (Lordnikon) [2003 Civitas/Covenant/ULN/TLN]
(0 pts) "Strong Headache" 3:10 (8580) by Rafal Szyja (Raf) [2003 Samar/Beats Factory]
(0 pts) "Welcome Home" 2:40 (8580) by Pawel Ruczko (Murdock) [2003 Tropyx]
(000 pts) "Haunted" 6:34 (6581) (The juror haven't submitted her rank) by Vanja Utne (Mermaid) [2003 Creators]

Audience Rank:

(413 pts) "Illumination" 3:34 (6581) by Lasse Öörni (Cadaver) [2003 Covert Bitops]
(409 pts) "Downtown Connection" 3:22 (8580) by Michal Hoffmann (Smalltown Boy) [2003 MultiStyle Labs]
(407 pts) "Shining Hour" 4:37 (8580) by Stellan Andersson (Dane) [2003 Crest]
(405 pts) "Cybersoap" 4:58 (6581) by Timo Taipalus (Abaddon) [2003 Damage/FairLight]
(405 pts) "Floatee" 3:30 (8580) by Kamil Wolnikowski (Jammer) [2003 Multistyle Labs/Samar]
(395 pts) "One Hit Wonder" 2:35 (8580) by Alexander Rotzsch (Fanta) [2003 Fanta]
(389 pts) "O Boy" 2:24 (6581) by Yodelking & UL-Tomten [2003 Defiers]
(373 pts) "Downstairs Funk" 2:25 (6581) by Glenn Rune Gallefoss [2003 SHAPE/Blues Muz']
(371 pts) "Kingston's Sick" 2:50 (8580) by Ronny Engmann (dalezy) [2003 Creators]
(368 pts) "Short Metamorphosis" 2:50 (8580) by Stefan Uram (Orcan) [2003 Orcan]
(363 pts) "Nekkid On All Fours" 2:44 (6581) by Marc van den Bovenkamp (No-XS) [2003 Toondichters]
(356 pts) "Forgotten 80's" 2:23 (8580) by Marcin Romanowski (Sidder) [2003 MultiStyle Labs/Role]
(353 pts) "Celebrating Samhain" 4:06 (6581) by Rafal Kazimierski (Asterion) [2003 Samar]
(352 pts) "Dropping the Dishes" 3:05 (8580) by Gerard Hultink [2003 Gerard Hultink]
(349 pts) "Nipponesque xperience" 2:43 (6581) by Daniel M. Gartke (Turtle) [2003 The Demented]
(338 pts) "MUmaid" 4:52 (8580) by Vincent Merken (Vip) [2003 ViruZ]
(330 pts) "My Output Is Danceable" 4:05 (8580) by Mark Waldaukat (Heinmukk) [2003 Salva Mea]
(322 pts) "Equation of Time" 2:37 (6581) by Kursad Karamahmutoglu(Hydrogen) [2003 Bronx]
(321 pts) "Lost Memories " 3:04 (6581) by Manuel Müller (CJ Rayne) [2003 X-Style]
(321 pts) "Pure" 2:01 (6581) by Bekir Ogurlu (Slowhand) [2003 Independent]
(321 pts) "Monolith" 6:35 (8580) by Mark Thomas Ross (MTR1975) [2003 FunkScientist Productions]
(311 pts) "Tauh" 2:19 (6581) by Pietari Toivonen (hukka) [2003 hukka]
(310 pts) "The-End" 3:30 (6581) by Kent Hofling (Kenho) [2003 4ba]
(307 pts) "Jazzy" 1:55 (6581) by Carl Gustaf Liebe (Yaemon) [2003 Depredators Music Division]
(306 pts) "Gradius Supernova '86" 4:42 (8580) by Luca Carrafiello (Luca) [2003 FIRE]
(301 pts) "The Final Dance" 3:35 (8580) by Arman Behdad (Intensity) [2003 Onslaught/Cosine]
(299 pts) "Sidcompo 3" 2:02 (6581) by maktone & Jonathan (natanl) [2003 FairLight]
(299 pts) "Trusted People" 5:37 (8580) by Richard Bayliss [2003 Civitas]
(294 pts) "Le Tartar and Pretzelism" 6:40 (8580) by Stephan Drost (Pater Pi) [2003 Church 64]
(289 pts) "Intelligent_Technology" 3:46 (8580) by Pontus Olsson (pOnToNiuS) [2003 pOnToNiuS]
(277 pts) "Haunted" 6:34 (6581) by Vanja Utne (Mermaid) [2003 Creators]

(274 pts) "Archnial" / 4:55 (6581) by Jaymz Julian (A Life in Hell) [2003 Warriors of the Wasteland]
 (272 pts) "Dark Eagle" 3:10 (8580) by Trond Jensen (TDS) [2003 Creators]
 (265 pts) "Purity" 2:24 (6581) by Aleks Eeben [2003 CNCD]
 (257 pts) "Eire Outcast" 2:05 (6581) by Anders Carlsson (Zapac) [2003 Zapac]
 (244 pts) "Choppy" 2:01 (6581) by Oliver VieBrooks (Six) [2003 Dark Lords of Chaos]
 (243 pts) "Lichtblick" 4:15 (8580) by Robert Dörfler (Lordnikon) [2003 Civitas/Covenant/ULN/TLN]
 (242 pts) "Chantelle" 4:06 (6581) by Andy Vaisey [2003 FunkScientist Productions]
 (239 pts) "Compus_Mentus" 3:45 (8580) by Andrew Fisher (Merman) [2003 People of Liberty/Role]
 (237 pts) "Welcome Home" 2:40 (8580) by Pawel Ruczko (Murdock) [2003 Tropy]
 (232 pts) "DataDataDataData" 3:55 (6581) NTSC by Akira K [2003 Kiken Corporation]
 (229 pts) "Divine Unconcern" 4:43 (6581) by Mariusz Cichy (Borgon) [2003 Borgon]
 (152 pts) "Strong Headache" 3:10 (8580) by Rafal Szyja (Raf) [2003 Samar/Beats Factory]

HVSC 5.5

Released on 19/12/2003 the Christmas update 37 of HVSC with lot of tunes and some stuff from old composers.

After this update, the collection should contain 23,453 SID files!

This update features (all approximates):

- 1977 new SIDs
- 97 fixed/better rips
- 219 fixes of PlaySID/Sidplay1 specific SIDs
- 7 repeats/bad rips eliminated
- 197 SID credit fixes
- 86 tunes moved out of /DEMOS to their composers' directories
- 4 tunes from /DEMOS/UNKNOWN identified
- 15 tunes moved out of /GAMES to their composers' directories

It's Christmas time again, and like every year we have prepared something very special for you all:

Not only do we bring you 2280 SID tunes (of which almost 2000 are new ones), but we also decided that it's not much use having hundreds of digi rips lying around in our Unreleased archive. So for all the people who are listening to SID music on a real C64 this might be good news:

We added all 219 RSID fixes of PSID specific rips in HVSC! Most, if not all of them are digi tunes, keep in mind that they can only be listened to on a real C64 or Sidplay2.

Also be sure to check out Martin Galway's directory after the update:

Thanks to Chris Abbott's great connection to Martin Galway and Alistair "Boz" Bowness ripping skills we can finally present you the probably most sought after SID tune on this planet:

The long lost Street Hawk is here in two fantastic versions, one prototype with less effects and the final version with bells and whistles that ought to be used in the game. And of course: Kudos to Martin Galway, who kindly provided his disks!

What more is there to discover in this update?

- A lot of new tunes from classic composers, such as 20CC, Neil Baldwin, Wally Beben, Matthew Cannon, Mark Cooksey, Ian Crabtree, Deek, Danko, Geoff Follin, Matt Gray, Stefan Hartwig, Ryo Kawasaki, Marcel Donné, Prosonix, Sonic Graffiti, Jeroen Tel, Michael Winterberg and many more.
- But also some of the current scene composers have unveiled their old tunes to us. Just to mention a few: Check out 4-Mat, Agemixer, Abaddon, Amorphis, Arman Behdad, Blues Muz', Britelite, Cyberbrain, Daf, Decoy, Ed, Factor6, Fanta, Goto80, Jammer, Klax, maktone, Megastyle, Merman, Mitch&Dane, Moog, Pater Pi, Rambones, Replay, Sad, Shapie, Skysurfer, SoNiC, Taxim, Welle:Erdball, Wizard and the fabulous Nylon.
- This update contains the compotunes from SID Compo 3, bcnparty 2003, Breakpoint 2003, Bronx \$7d3, Primary Star 2003, Assembly 2003, Scenecon '03 and TUM'02 (and a couple more compotunes we found along the way).

- Furthermore, we've now added the remainder of the tunes that have appeared in the issues of the C64 disk magazine "Domination".
- To make HVSC friendlier to browse we added the following subdirectories:

```

/20CC:
=====
/Paul_Falco
/van_Santen_Edwin

/FAME:
=====
/Hendriks_Michael
/Knippling_Holger

/Rockin_Limited:
=====
/Schaefer_Joerg

/SoedeSoft:
=====
/Soede_Jeroen
/Soede_Michiel

/VARIOUS/M-R/Mitch_and_Dane:
=====
/Dane
/Mitch

```

It looks nice and clean now and allows everybody to keep track of their favourite composers easier.

```

/VARIOUS/M-R/Megastyle/
=====

```

The Megastyle musicians Rage, Crockett, Scroll, Lizard and Drumtex wished to be hosted under one roof, so we moved /VARIOUS/G-L/Lizard/ and /VARIOUS/M-R/Rage/ to the Megastyle directory.

HVSID player plugin v3

After more than 1.5 year passed, and the SID player plugin improved once again ;) New features:

- RSID support
- 'Correct' author name display (iso-8859-1 -> petscii)
- bugfixed keyboard handling
- 51 bytes shorter ;)

Get it from:

<http://singularcrew.hu/ide64warez/>

ftp://c64.rulez.org/pub/c64/IDE64/Tools/Plugins/HVSID_player_v3b.zip

NinjaTracker v1.05

Released on 6 January 2004 the new version of the C64 music editor of Cadaver that now include a slide duration calculator.

Download the player here: <http://covertbitops.c64.org/tools/ninjatrk.zip>

Chris Huelsbeck Interview!

by Stefano Tognon

This time we can read this interview with Chris Huelsbeck that was done with some emails over the last months (thanks Chris). I think you already know Chris as Sid and Amiga composer, but if you are more young you can know he for his works on console games.

Hello, Chris,

I always start asking to speak about the real life: as you are very famous and well-know, maybe you could say something about your actual work if you prefer.

My life has changed quite a bit after I moved to the US in February of 1998. I worked since then on several high profile projects, like the Star Wars Rogue Squadron series for the Nintendo consoles. Other than my busy work, I lead a pretty relaxed life. But I am not famous like a Hollywood star and never felt that way, though I had some interesting moments in the early 90s with some fans following me everywhere at a trade show. I am also not rich as some people think. In my spare time I like to see movies and listen to (or make) music just for fun.

Speaking about the C64, you wrote your own music stuff (e.g. the Soundmonitor (musicmaster)): how many improvement did you give to your editor during his life and was you inspired to other tools for making them?

The Soundmonitor was my first big software project and was based on my third music player (the first was pretty basic for a friends game, the second was for Shades). After that I made 2 revisions of the player, one was more memory and CPU efficient (TFM, for "The Final Musicplayer" which funnily wasn't the final one at all ;) ,and the second one added my sample playback. Later I went actually back to non-sample SID sound because the later revisions of the C64 had problems with that and the games became so big and resource hungry. So I wrote another editor and player that was able to do some very wild SID effects and good drums without samples. It was called TFMX (which was for "The Final Musicsystem Extended" ;)

This is just a my historical curiosity: did you share/sell the source of your soundmonitor editor? (e.g. Rockmonitor 2/3 by Dutch USA-Team is a modified version of your player)

No, the Rockmonitor was a hack / reverse engineered by those guys.
Back then I was a bit mad about them, but not anymore...

If you still have the sources of your C64 works, what about donate them to the C64 community before the time damage the disks? (well, I'm an open source people, so the question is natural... :))

I saved almost everything from my old C64 disks and put them on the PC / CD-Roms, so nothing get's lost. I have thought about releasing some stuff incl. the sources, but I haven't found the time yet to sort through that chaos on those disks.

What do you think about people like me (but we are many more) that listen sid music every days and still compose music using a chip that is 20 years old?

I like to listen to the old tunes myself sometimes and maybe I will compose a new piece for the SID some day, who knows.

The most important question for all your fans: there will be the possibility that one day you compose a new C64 tune just for fun? Or, had you some not released C64 music work that is still in your old floppy?

Oops, I guess I just answered that one from the last question. And there may be a couple of unfinished pieces that sit in my collection somewhere, but I haven't found the time yet to go through all that stuff.

***Now some quick final (standard) questions:
Real machine vs emulator: what do you think of?***

The real machine is still the only choice if you want the right atmosphere and the smoothest SID sound. But nothing can beat the convenience of the emulators.

6581 vs 8580 chip: any (musical) preference?

There is only one true original and later C64 revisions where not as good with playback of samples, but the SID voices by themselves didn't sound that much different to me...

What is the worst sid that you compose and the better one?

The worst might be my ugly cover version of "Being Boiled". My favorite is Starball.

Who are your best sid authors?

Rob Hubbard, Martin Galway, Jeroen Tel and Ben Daglish

What are the best sids ever in your opinion?

Cybernoid, Monty on the run, One man and his droid, The Last V8, Wizball

Finally, many thanks for the time you give for this interview, and now you can say any things you want that the people will read from you!

Thanks for being patient with me when it comes to answering emails. I try my best to make everybody happy, but it sometimes just overwhelms me. You are welcome to visit my site at www.huelsbeck.com and watch out for new tunes on my mp3 page.

Webography [from Chris]:

Official site:
<http://www.huelsbeck.com/>

My Game Music CD label:
<http://www.synsoniq.com>

Check also my latest music releases:
<http://www.electronicscene.com/huelsbeck>

Music Engines Pattern Searching (part 2)

by Stefano Tognon <ice00@libero.it>

In issue 3 I describe how with pattern searching we can find music engines.

Now it's time to look to the Lada 'Ray' Lostack database of engines that contains the information of how to find about 450 engines.

In this page I will describe how the actual database is made, but some study is being done for eventually modify the format of the database for increasing his power.

Database format

The database is based onto entry formatted in C-like code:

```
Player {                                ; begin of 'Player' block - the brace ('{') must be placed ON THE SAME LINE)
  Name=playername                       ; player name (sometimes author & player)
  ID=offset:value 1                      ; up to 16 IDs (see bellow) minimum of IDs are 3....
  .
  ID=offset:value N
  Message=offset:length 1                ; up to 16 different "messages"
  .                                       ; if length is zero, message is zero padded
  Message=offset:length N
  OrderPos=offset1,offset2,offset3      ; these addresses in C64 memory contains actual order position
  SecPos=offset1,offset2,offset3        ; these addresses contain the actual row in sector
}
```

The first field is *Name* where there is to put the name of the player (and/or author), for examples:

```
Name=DMC V4.0
Name=DMC V4 - clone I
Name=FALCO PAUL FX
Name=FUTURE COMPOSER 1.0
Name=JCH 02/NEWPLAYER V17.G1
```

The next important fields are the ID.

You must specify at least 3 ID for recognize an engine, but you can use a maximum of 16 ID.

One ID simply specifies the value we must found at the given offset (relative of absolute like we see later) into memory/file.

For finding an engine there is that all the values of the ID at the given offset must be matched.

Let me take an (invented) examples:

```
Player {
  Name=Example 1
  ID=$0000:$10
  ID=$0001:$11
  ID=$0003:$12
  ID=$0006:$13
}
```

This entry will found an engine like this that we found with this Perl pattern searching string (see issue 3):

```
'\x10\x11.\x12..\x13'
```

But now look at this example:

```
Player {  
    Name=Example 2  
    ID=$0001:$10  
    ID=$0002:$11  
    ID=$0004:$12  
    ID=$0007:$13  
}
```

What will this entry found? The same as example1?

Yes and no: now we see why.

Memory locations

This database derived from the Advanced Music Searcher AMS 5.0.415, a tools that run in a C64 and it is able to find if in memory there are some music engines loaded.

To do that, AMS scans the memory and applies the search of the IDs: the time required is proportional at the number of engines to found and by the number of memory locations it starts for applying the search.

```
C64 Memory (xx,yy,zz,ll,kk=some values):  
$1000: xx  
$1001: 10  
$1002: 11  
$1003: yy  
$1004: 12  
$1005: zz  
$1006: ll  
$1007: 13  
$1008: kk
```

Suppose that AMS applies the searching each \$1000 bytes: so from \$0000, to \$1000, then \$2000,...

If AMS searches for *Example1* player, it will found that at memory location \$1000+\$0000 there is the value *xx* that is not the expected (*10*), so *Example1* is not found.

But when search for *Example2*, it finds that the value at \$1000+\$0001 is 10 as expected. Then the value at \$1000+\$0002 is 11, and so on for all the other values: *Example2* player is found.

However, if AMS will search using a 1 byte step in memory (\$1000, then \$1001, then \$1002,...) it will found that the player in memory is both *Example1* and *Example2*

So *Example1* and *Example2* identify the same player.

At this point is simple to understand that the relative offsets in the ID are respect at the point where the program will apply the search in memory.

It is most probably that AMS use step of \$100 bytes, as usually a player can be relocated in fixed memory location: you will found that a player locates the tune at \$1000 but not a \$1001 (and so *Example2* is the right player pattern to use).

So, when producing an entry, which offset may we use?

ID offset

The answer to the previous question is simple: depending of how the database will be used.

Think to possible applications:

- Sidplayers
- C64 emulators
- Sid ripping tools
- Real C64

And now we see each case:

1. Real C64

In this case the answer is simple: offset must be relative to some fixed memory locations based onto steps of \$100 or \$200. The time needed for a complete scan with a big database is high, and so applications (like AMS) must have an database based onto these type of offset.

But are this kind of applications to use anymore in a real C64? I think that as today the C64 music is stored into PSID (RSID) files, there are no needed of use this database in the real C64 for knowing the engine used by the sid being listen: it is only necessary that tools like PSID64 calculates the engine used by the PSID file being converted during the generation of the C64 prg file. This calculation is made using a PC, and so we are in the other category of programs.

2. Sidplayers, C64 emulators, Sid ripping tools

All these programs are running into PC, so there is no power problem in running the searching byte by byte in memory.

I would like to motive why the above category of programs can take advantage of using the database of engines:

- C64 emulators

If a ripper loads a program, that must be ripped, into a C64 emulator, it should be good if an option of the emulator will start the scan of the (emulated) memory for searching for known engines: if a ripper know the engine he is being ripped it will be more simple his work.

- Sid ripping tools

If a ripper uses specific tools (like PSIDedit) for ripping, this is like the previous case.

- Sidplayers

I think that it is very interesting to read with which engines a PSID tune is made directly into the sidplayer that is reproducing the music.

The last thing to say for ID offset is that you can even specify absolute offset, like in this example:

```
Player {  
    Name=Example 3  
    ID=#$0300:$10  
    ID=#$0301:$11  
    ID=#$0303:$12  
}
```

In this case the searching of byte \$10 is done at the absolute memory location \$0300, \$11 in \$301 and \$12 in \$0303.

Even if this can be a good methods for finding engines that put special value into fixed memory locations, I think that you must not use this technique anymore.

In fact, only programs that have an emulated C64 memory (like sidplayers, C64 emulators) can look for these fixed values.

Instead, tools like SIDedit that manage PSID file and so they not have an emulated memory, cannot recognize engines that use absolute memory locations.

Messages

This special field in the player entry can be used by a sidplayer to show information that could be contained into the music.

You can specify a maximum of 16 messages like in this examples:

```
Message=$0012:10
Message=$0530:0
```

In the first we say that a message of length 10 is contained at relative offset \$0012, while in the second, a message with a variable length (it finishes when a 0 is found) is positioned at relative offset \$0530

Actually, there are no entry in the database that use messages, but engines like Compute's Gazette Sidplayer could take advantage of messages.

Order/Sector

Probably the most difficult to understand fields of the database format are OrderPos and SecPos. These fields specify where in C64 memory there are the actual values of Order position and Sector position.

The syntax need that 3 offset (relative/absolute) values must be specify: one for each sid voices.

Here an example:

```
OrderPos=$0921,$0922,$0923
SecPos=$0924,$0924,$0926
```

Well, but what are order and sector?

If you are a musician, you probably know that many kind of music editor/tracker use tracks and sectors for let you insert the music like in this example:

```
Track v1: 01 02 03 01 01 00
Track v2: 06 06 06 05 05 00
Track v3: 08 07 08 07 04 00

Sector 01: ins1 dur3 C4 C5 D4 D5
Sector 02: ins1 dur1 A2 dur3 A3
...
Sector 08: inst3 dur4 B4 B4 B3 B3
```

When the player reproduce your music, he starts with track v1/sector 01 and so put C4 C5 D4 D5 notes, then track v1/sector 02 with A2, A3 notes and so on (in the same time he manages even the tracks/patterns for the other 2 voices in the same manner).

For doing this, many players stored the actual values of tracker position and sector position in some memory locations: these are the positions we need for OrderPos and SecPos.

```
OrderPos voice1  01.....|02.....|
SecPos voice1   01..02..03..04..|01..02..|

OrderPos voice2  06.....|06.....|
SecPos voice2   01.. 02..|01.. 02..|

OrderPos voice3  08.....|08.....|
SecPos voice3   01.....02.....03.....04.....|01.....02.....03.....04.....|
```

The above graph try to show what values are stored into OrderPos memory location for voice 1, 2 and 3, and SecPos for voice 1, 2 and 3 at each player call (timing are all invented).

We see that OrderPos for voice 1 start with values 01 and after that SecPos for voice 1 takes the values 01, 02, 03, 04 (the four notes C4 C5 D4 D5 to play), he passes to value 02.

Maybe now I think you know what are the true meaning of OrderPos and SecPos, but you probably are thinking what is a useful use we can make with these values.

The answer is simple:

- We can have a sidplayer that shows in realtime what the player is doing (using some patter lines you can really figure how music is made).
- Detect the true length of the music.

If you are wondering how the last point can be reached, I let you some hint.

In all the players that use track position, there are special values (usually \$FF and \$FE) that are used for determine what to do when the track is finished:

1. One value means to restart the track from the beginning
2. The other means to stop the sound generation for this voice because the music is finished

So, for examples, if in a player call we see that the OrderPos value change 2 values, we are experimenting the case of track restarting and if this has happened for all the 3 voices, then for sure the tune is completely restarted:

```
Track1: 01 02 03 FE
Track2: 05 05 06 07 07 FE
Track3: 08 08 FE
```

In this example, the tune will be completely restart when the voice 2 restart, because if we see the voice restarting we see something like this:

```
Start          V3 restart   V1 restart   V3 restart   V2 restart
```

So only when all the voices are restarting we can saw that the tune is finished.

In the type 2 of track final signature, we can saw that the tune is finished as soon as the SecPos value did not change anymore after the OrderPos value where changed.

The last thing to say about OrderPos and SecPos is that some player use only one location as all the tree voices use the same track, like in this example:

```
Common Track: 01 02 03 ...

Sector 01:
Voice 1 note1 note2 note3...
Voice 2 note1 note2 note3...
Voice 3 note1 note2 note3...
```

As you can see, in this case we must specify the same values for OrderPos and SecPos, like in this example:

```
Player {
    Name=TAXIM?
    ID=$0001:$12
    ID=$0002:$C0
    ID=$0004:$0D
    OrderPos=#$02C1,#$02C1,#$02C1
    SecPos=#$02C0,#$02C0,#$02C0
}
```

Examples

Ok, now it's time to give a complete example taken from the database

- Future Composer 1 player

```
Player {
    Name=FUTURE COMPOSER 1.0
    ID=$0006:$AD
    ID=$0007:$74
    ID=$0009:$C9
    ID=$000A:$02
    OrderPos=$0921,$0922,$0923
    SecPos=$0924,$0924,$0926
}
```

Ok, there are more than 1000 tunes in HVSC that use this player, so I take one of them: /VARI-
OUS/G-L/Luca/Moonlight_shadow.sid and present here a partial SIDedit disassembly

```
;1800 4C 08 21 JMP $2108
;1803 4C 17 21 JMP $2117
;1806 AD 74 21 LDA $2174
;1809 C9 02 CMP #$02
;180B F0 07 BEQ 1814
;180D C9 01 CMP #$01
;180F D0 19 BNE 182A
;1811 4C E8 20 JMP $20E8
;1814 60 RTS
;1815 01 26 ORA ($26,X)
;1817 EE 16 18 INC $1816
;181A EE 16 18 INC $1816
;181D AD 16 18 LDA $1816
;1820 C9 32 CMP #$32
;1822 D0 05 BNE 1829
;1824 A9 01 LDA #$01
;1826 8D 15 18 STA $1815
;1829 60 RTS
;182A EE 42 21 INC $2142
;182D EE 43 21 INC $2143
;1830 EE 44 21 INC $2144
;1833 A9 1F LDA #$1F
;1835 8D 18 D4 STA $D418
;1838 A2 02 LDX #$02
;183A CE 73 21 DEC $2173
;183D 10 06 BPL 1845
;183F AD 1D 21 LDA $211D
;1842 8D 73 21 STA $2173
;1845 2C 20 D0 BIT $D020
;1848 86 FF STX $FF
;184A BD 1E 21 LDA $211E,X
;184D 8D 56 21 STA $2156
;1850 A8 TAY
;1851 AD 73 21 LDA $2173
;1854 CD 1D 21 CMP $211D
;1857 D0 12 BNE 186B
;1859 BD A1 1E LDA $1EA1,X
;185C 85 FB STA $FB
;185E BD A4 1E LDA $1EA4,X
```

```

;1861      85 FC      STA $FC
;1863      DE 27 21  DEC $2127,X
;1866      30 06      BMI 186E
;1868      4C FA 19  JMP $19FA
;186B      4C 0A 1A  JMP $1A0A
;186E      BC 21 21  LDY $2121,X      ; read OrderPos
;1871      B1 FB      LDA ($FB),Y
;1873      C9 FE      CMP #$FE          ; end mark
;1875      F0 15      BEQ 188C
;1877      C9 FF      CMP #$FF          ; end mark
;1879      D0 19      BNE 1894
;187B      A9 00      LDA #$00
;187D      9D 27 21  STA $2127,X
;1880      9D 21 21  STA $2121,X      ; reset OrderPos
;1883      9D 24 21  STA $2124,X      ; reset SecPos
;1886      8D 72 21  STA $2172
;1889      4C 6E 18  JMP $186E
;188C      A9 02      LDA #$02
;188E      8D 74 21  STA $2174
;1891      4C 0B 21  JMP $210B
;1894      8D 67 21  STA $2167
;1897      29 80      AND #$80
;1899      F0 0E      BEQ 18A9
;189B      AD 67 21  LDA $2167
;189E      29 1F      AND #$1F
;18A0      9D 4F 21  STA $214F,X
;18A3      FE 21 21  INC $2121,X      ; next OrderPos
;18A6      4C 6E 18  JMP $186E
;18A9      AD 67 21  LDA $2167
;18AC      29 40      AND #$40
;18AE      F0 0E      BEQ 18BE
;18B0      AD 67 21  LDA $2167
;18B3      29 3F      AND #$3F
;18B5      9D 76 21  STA $2176,X
;18B8      FE 21 21  INC $2121,X      ; next OrderPos
;18BB      4C 6E 18  JMP $186E
;18BE      AD 67 21  LDA $2167
;18C1      0A          ASL
;18C2      A8          TAY
;18C3      B9 A7 1E  LDA $1EA7,Y
;18C6      85 FD      STA $FD
;18C8      B9 A8 1E  LDA $1EA8,Y
;18CB      85 FE      STA $FE
;18CD      A9 00      LDA #$00
;18CF      9D 3F 21  STA $213F,X
;18D2      BC 24 21  LDY $2124,X      ; next SecPos
;18D5      9D 42 21  STA $2142,X
;18D8      A9 03      LDA #$03
;18DA      9D 61 21  STA $2161,X
;18DD      B1 FD      LDA ($FD),Y
;18DF      85 F8      STA $F8
;18E1      29 F0      AND #$F0
;18E3      C9 F0      CMP #$F0
;18E5      D0 10      BNE 18F7
;18E7      A9 01      LDA #$01
;18E9      9D 80 21  STA $2180,X
;18EC      FE 24 21  INC $2124,X      ; next SecPos
;18EF      C8          INY
;18F0      B1 FD      LDA ($FD),Y
;18F2      85 F8      STA $F8
;18F4      4C 57 19  JMP $1957
;18F7      A9 00      LDA #$00
;18F9      9D 80 21  STA $2180,X
;18FC      A5 F8      LDA $F8
;18FE      29 F0      AND #$F0
;1900      C9 E0      CMP #$E0
;1902      D0 2C      BNE 1930
;1904      A5 F8      LDA $F8
;1906      29 01      AND #$01
;1908      18          CLC
;1909      69 01      ADC #$01
;190B      9D 3F 21  STA $213F,X
;190E      A5 F8      LDA $F8
;1910      29 0E      AND #$0E
;1912      4A          LSR
;1913      8D 65 21  STA $2165
;1916      FE 24 21  INC $2124,X      ; next SecPos
;1919      C8          INY
;191A      B1 FD      LDA ($FD),Y
;191C      48          PHA
;191D      29 F0      AND #$F0
;191F      8D 64 21  STA $2164
;1922      68          PLA
;1923      29 0F      AND #$0F
;1925      8D F8 1A  STA $1AF8
;1928      FE 24 21  INC $2124,X      ; next SecPos
;192B      C8          INY
;192C      B1 FD      LDA ($FD),Y
;192E      85 F8      STA $F8
;1930      A5 F8      LDA $F8
;1932      29 E0      AND #$E0

```

```

;1934 C9 C0 CMP #C0
;1936 D0 0A BNE 1942
;1938 A5 F8 LDA $F8
;193A 29 1F AND #F1F
;193C 9D 33 21 STA $2133,X
;193F 20 ED 19 JSR $19ED
;1942 A5 F8 LDA $F8
;1944 29 C0 AND #C0
;1946 C9 80 CMP #C80
;1948 D0 0D BNE 1957
;194A A5 F8 LDA $F8
;194C 29 3F AND #F3F
;194E 9D 2A 21 STA $212A,X
;1951 20 ED 19 JSR $19ED
;1954 4C DD 18 JMP $18DD
;1957 BD 2A 21 LDA $212A,X
;195A 9D 27 21 STA $2127,X
;195D A5 F8 LDA $F8
;195F 18 CLC
;1960 7D 4F 21 ADC $214F,X
;1963 9D 30 21 STA $2130,X
;1966 A8 TAY
;1967 B9 64 1D LDA $1D64,Y
;196A 48 PHA
;196B B9 C4 1D LDA $1DC4,Y
;196E AC 56 21 LDY $2156
;1971 99 01 D4 STA $D401,Y
;1974 9D 36 21 STA $2136,X
;1977 9D 39 21 STA $2139,X
;197A 68 PLA
;197B 99 00 D4 STA $D400,Y
;197E 9D 3C 21 STA $213C,X
;1981 BD 80 21 LDA $2180,X
;1984 D0 46 BNE 19CC
;1986 BD 33 21 LDA $2133,X
;1989 0A ASL
;198A 0A ASL
;198B 0A ASL
;198C AA TAX
;198D 8E 52 21 STX $2152
;1990 BD 8A 21 LDA $218A,X
;1993 99 05 D4 STA $D405,Y
;1996 BD 8B 21 LDA $218B,X
;1999 99 06 D4 STA $D406,Y
;199C BD 8C 21 LDA $218C,X
;199F 48 PHA
;19A0 BD 88 21 LDA $2188,X
;19A3 48 PHA
;19A4 BD 89 21 LDA $2189,X
;19A7 A6 FF LDX $FF
;19A9 9D 2D 21 STA $212D,X
;19AC 9D 79 21 STA $2179,X
;19AF A9 00 LDA #00
;19B1 99 02 D4 STA $D402,Y
;19B4 9D 45 21 STA $2145,X
;19B7 68 PLA
;19B8 9D 4B 21 STA $214B,X
;19BB 29 0F AND #F0F
;19BD 99 03 D4 STA $D403,Y
;19C0 9D 48 21 STA $2148,X
;19C3 A9 01 LDA #F01
;19C5 9D 6F 21 STA $216F,X
;19C8 68 PLA
;19C9 9D 6C 21 STA $216C,X
;19CC FE 24 21 INC $2124,X ; next SecPos
;19CF BC 24 21 LDY $2124,X
;19D2 B1 FD LDA ($FD),Y
;19D4 C9 FF CMP #FFF ; end mark
;19D6 D0 12 BNE 19EA
;19D8 A9 00 LDA #00
;19DA 9D 24 21 STA $2124,X
;19DD BD 76 21 LDA $2176,X
;19E0 F0 05 BEQ 19E7
;19E2 DE 76 21 DEC $2176,X
;19E5 10 03 BPL 19EA
;19E7 FE 21 21 INC $2121,X
;19EA 4C 52 1D JMP $1D52
;19ED FE 24 21 INC $2124,X ; next SecPos
;19F0 C8 INY
;19F1 B1 FD LDA ($FD),Y
;19F3 C9 FF CMP #FFF ; end mark
;19F5 F0 E1 BEQ 19D8
;19F7 85 F8 STA $F8
;19F9 60 RTS
;19FA AC 56 21 LDY $2156
;19FD BD 42 21 LDA $2142,X
;1A00 F0 08 BEQ 1A0A
;1A02 BD 2D 21 LDA $212D,X
;1A05 29 FE AND #FE
;1A07 9D 79 21 STA $2179,X
;1A0A BD 33 21 LDA $2133,X

```

```

;1A0D 0A ASL
;1A0E 0A ASL
;1A0F 0A ASL
;1A10 A8 TAY
;1A11 B9 8D 21 LDA $218D,Y
;1A14 8D 53 21 STA $2153
;1A17 B9 8E 21 LDA $218E,Y
;1A1A 8D 54 21 STA $2154
;1A1D B9 8F 21 LDA $218F,Y
;1A20 8D 55 21 STA $2155
;1A23 29 04 AND #$04
;1A25 D0 0C BNE 1A33
;1A27 AD 55 21 LDA $2155
;1A2A 29 10 AND #$10
;1A2C D0 05 BNE 1A33
;1A2E AD 53 21 LDA $2153
;1A31 D0 03 BNE 1A36
;1A33 4C 30 20 JMP $2030
;1A36 48 PHA
;1A37 29 78 AND #$78
;1A39 4A LSR
;1A3A 4A LSR
;1A3B 4A LSR
;1A3C 9D 58 21 STA $2158,X
;1A3F 68 PLA
;1A40 29 07 AND #$07
;1A42 8D 57 21 STA $2157
;1A45 BD 5B 21 LDA $215B,X
;1A48 F0 0A BEQ 1A54
;1A4A DE 5E 21 DEC $215E,X
;1A4D D0 19 BNE 1A68
;1A4F FE 5B 21 INC $215B,X
;1A52 10 14 BPL 1A68
;1A54 FE 5E 21 INC $215E,X
;1A57 BD 58 21 LDA $2158,X
;1A5A DD 5E 21 CMP $215E,X
;1A5D B0 09 BCS 1A68
;1A5F 9D 5E 21 STA $215E,X
;1A62 DE 5B 21 DEC $215B,X
;1A65 DE 5E 21 DEC $215E,X
;1A68 BD 30 21 LDA $2130,X
;1A6B A8 TAY
;1A6C B9 65 1D LDA $1D65,Y
;1A6F 38 SEC
;1A70 F9 64 1D SBC $1D64,Y
;1A73 8D 7F 21 STA $217F
;1A76 B9 C5 1D LDA $1DC5,Y
;1A79 F9 C4 1D SBC $1DC4,Y
;1A7C 7D 42 21 ADC $2142,X
;1A7F 4A LSR
;1A80 CE 57 21 DEC $2157
;1A83 30 07 BMI 1A8C
;1A85 4A LSR
;1A86 6E 7F 21 ROR $217F
;1A89 4C 80 1A JMP $1A80
;1A8C 8D 7E 21 STA $217E
;1A8F B9 64 1D LDA $1D64,Y
;1A92 8D 7C 21 STA $217C
;1A95 B9 C4 1D LDA $1DC4,Y
;1A98 8D 7D 21 STA $217D
;1A9B BD 58 21 LDA $2158,X
;1A9E 4A LSR
;1A9F A8 TAY
;1AA0 88 DEY
;1AA1 30 16 BMI 1AB9
;1AA3 38 SEC
;1AA4 AD 7C 21 LDA $217C
;1AA7 ED 7F 21 SBC $217F
;1AAA 8D 7C 21 STA $217C
;1AAD AD 7D 21 LDA $217D
;1AB0 ED 7E 21 SBC $217E
;1AB3 8D 7D 21 STA $217D
;1AB6 4C A0 1A JMP $1AA0
;1AB9 BD 42 21 LDA $2142,X
;1ABC C9 04 CMP #$04
;1ABE 90 2B BCC 1AEB
;1AC0 BC 5E 21 LDY $215E,X
;1AC3 88 DEY
;1AC4 30 16 BMI 1ADC
;1AC6 18 CLC
;1AC7 AD 7C 21 LDA $217C
;1ACA 6D 7F 21 ADC $217F
;1ACD 8D 7C 21 STA $217C
;1AD0 AD 7D 21 LDA $217D
;1AD3 6D 7E 21 ADC $217E
;1AD6 8D 7D 21 STA $217D
;1AD9 4C C3 1A JMP $1AC3
;1ADC AC 56 21 LDY $2156
;1ADF AD 7C 21 LDA $217C
;1AE2 99 00 D4 STA $D400,Y
;1AE5 AD 7D 21 LDA $217D

```

```

;1AE8 99 01 D4 STA $D401,Y
;1AEB A6 FF LDX $FF
;1AED AC 56 21 LDY $2156
;1AF0 BD 2A 21 LDA $212A,X
;1AF3 38 SEC
;1AF4 FD 27 21 SBC $2127,X
;1AF7 C9 0F CMP #$0F
;1AF9 90 46 BCC 1B41
;1AFB BD 3F 21 LDA $213F,X
;1AFE F0 41 BEQ 1B41
;1B00 29 03 AND #$03
;1B02 C9 01 CMP #$01
;1B04 F0 1F BEQ 1B25
;1B06 AD 64 21 LDA $2164
;1B09 38 SEC
;1B0A BD 3C 21 LDA $213C,X
;1B0D ED 64 21 SBC $2164
;1B10 9D 3C 21 STA $213C,X
;1B13 99 00 D4 STA $D400,Y
;1B16 BD 36 21 LDA $2136,X
;1B19 ED 65 21 SBC $2165
;1B1C 9D 36 21 STA $2136,X
;1B1F 99 01 D4 STA $D401,Y
;1B22 4C 41 1B JMP $1B41
;1B25 AD 64 21 LDA $2164
;1B28 18 CLC
;1B29 BD 3C 21 LDA $213C,X
;1B2C 6D 64 21 ADC $2164
;1B2F 9D 3C 21 STA $213C,X
;1B32 99 00 D4 STA $D400,Y
;1B35 BD 36 21 LDA $2136,X
;1B38 6D 65 21 ADC $2165
;1B3B 9D 36 21 STA $2136,X
;1B3E 99 01 D4 STA $D401,Y
;1B41 AD 54 21 LDA $2154
;1B44 F0 6C BEQ 1BB2
;1B46 29 07 AND #$07
;1B48 A8 TAY
;1B49 88 DEY
;1B4A 98 TYA
;1B4B 0A ASL
;1B4C 0A ASL
;1B4D A8 TAY
;1B4E B9 95 1E LDA $1E95,Y
;1B51 DD 42 21 CMP $2142,X
;1B54 90 03 BCC 1B59
;1B56 4C 63 1B JMP $1B63
;1B59 C8 INY
;1B5A C8 INY
;1B5B B9 95 1E LDA $1E95,Y
;1B5E DD 42 21 CMP $2142,X
;1B61 90 0A BCC 1B6D
;1B63 C8 INY
;1B64 B9 95 1E LDA $1E95,Y
;1B67 8D 4E 21 STA $214E
;1B6A 4C 75 1B JMP $1B75
;1B6D AD 54 21 LDA $2154
;1B70 29 FC AND #$FC
;1B72 8D 4E 21 STA $214E
;1B75 BD 6F 21 LDA $216F,X
;1B78 D0 1D BNE 1B97
;1B7A BD 45 21 LDA $2145,X
;1B7D 38 SEC
;1B7E ED 4E 21 SBC $214E
;1B81 9D 45 21 STA $2145,X
;1B84 BD 48 21 LDA $2148,X
;1B87 E9 00 SBC #$00
;1B89 9D 48 21 STA $2148,X
;1B8C C9 01 CMP #$01
;1B8E B0 22 BCS 1BB2
;1B90 A9 01 LDA #$01
;1B92 9D 6F 21 STA $216F,X
;1B95 D0 1B BNE 1BB2
;1B97 BD 45 21 LDA $2145,X
;1B9A 18 CLC
;1B9B 6D 4E 21 ADC $214E
;1B9E 9D 45 21 STA $2145,X
;1BA1 BD 48 21 LDA $2148,X
;1BA4 69 00 ADC #$00
;1BA6 9D 48 21 STA $2148,X
;1BA9 C9 0F CMP #$0F
;1BAB 90 05 BCC 1BB2
;1BAD A9 00 LDA #$00
;1BAF 9D 6F 21 STA $216F,X
;1BB2 A9 00 LDA #$00
;1BB4 8D D4 1B STA $1BD4
;1BB7 BD 4B 21 LDA $214B,X
;1BBA 29 80 AND #$80
;1BBC F0 0C BEQ 1BCA
;1BBE BD 42 21 LDA $2142,X
;1BC1 29 01 AND #$01

```



```

;1BC3 F0 05 BEQ 1BCA
;1BC5 A9 B0 LDA #$B0
;1BC7 8D D4 1B STA $1BD4
;1BCA A6 FF LDX $FF
;1BCC AC 56 21 LDY $2156
;1BCF BD 45 21 LDA $2145,X
;1BD2 18 CLC
;1BD3 69 00 ADC #$00
;1BD5 99 02 D4 STA $D402,Y
;1BD8 BD 48 21 LDA $2148,X
;1BDB 69 00 ADC #$00
;1BDD 99 03 D4 STA $D403,Y
;1BE0 AD 55 21 LDA $2155
;1BE3 29 40 AND #$40
;1BE5 F0 14 BEQ 1BFB
;1BE7 A6 FF LDX $FF
;1BE9 BD 42 21 LDA $2142,X
;1BEC C9 03 CMP #$03
;1BEE 90 0B BCC 1BFB
;1BF0 29 03 AND #$03
;1BF2 AA TAX
;1BF3 BD 32 1E LDA $1E32,X
;1BF6 A6 FF LDX $FF
;1BF8 9D 79 21 STA $2179,X
;1BFB 8C 67 21 STY $2167
;1BFE AD 55 21 LDA $2155
;1C01 29 01 AND #$01
;1C03 F0 2A BEQ 1C2F
;1C05 A6 FF LDX $FF
;1C07 8E 75 21 STX $2175
;1C0A A9 89 LDA #$89
;1C0C 85 F9 STA $F9
;1C0E A9 1E LDA #$1E
;1C10 85 FA STA $FA
;1C12 A6 FF LDX $FF
;1C14 BD 42 21 LDA $2142,X
;1C17 A0 0B LDY #$0B
;1C19 D1 F9 CMP ($F9),Y
;1C1B B0 33 BCS 1C50
;1C1D A0 0A LDY #$0A
;1C1F D1 F9 CMP ($F9),Y
;1C21 B0 38 BCS 1C5B
;1C23 88 DEY
;1C24 C0 06 CPY #$06
;1C26 D0 F7 BNE 1C1F
;1C28 D1 F9 CMP ($F9),Y
;1C2A B0 06 BCS 1C32
;1C2C 4C 7B 1C JMP $1C7B
;1C2F 4C 6A 1C JMP $1C6A
;1C32 A5 FF LDA $FF
;1C34 0A ASL
;1C35 D0 03 BNE 1C3A
;1C37 18 CLC
;1C38 69 01 ADC #$01
;1C3A 8D 68 21 STA $2168
;1C3D AE 72 21 LDX $2172
;1C40 8A TXA
;1C41 2D 68 21 AND $2168
;1C44 D0 08 BNE 1C4E
;1C46 8A TXA
;1C47 18 CLC
;1C48 6D 68 21 ADC $2168
;1C4B 8D 17 D4 STA $D417
;1C4E A0 06 LDY #$06
;1C50 88 DEY
;1C51 88 DEY
;1C52 88 DEY
;1C53 88 DEY
;1C54 88 DEY
;1C55 88 DEY
;1C56 B1 F9 LDA ($F9),Y
;1C58 4C 73 1C JMP $1C73
;1C5B 88 DEY
;1C5C 88 DEY
;1C5D 88 DEY
;1C5E 88 DEY
;1C5F 88 DEY
;1C60 88 DEY
;1C61 BD 69 21 LDA $2169,X
;1C64 18 CLC
;1C65 71 F9 ADC ($F9),Y
;1C67 4C 73 1C JMP $1C73
;1C6A A5 FF LDA $FF
;1C6C CD 75 21 CMP $2175
;1C6F D0 0A BNE 1C7B
;1C71 A9 FF LDA #$FF
;1C73 A6 FF LDX $FF
;1C75 9D 69 21 STA $2169,X
;1C78 8D 16 D4 STA $D416
;1C7B AC 67 21 LDY $2167
;1C7E AD 55 21 LDA $2155

```

```

;1C81 29 10 AND #$10
;1C83 F0 5E BEQ 1CE3
;1C85 AD 53 21 LDA $2153
;1C88 29 0F AND #$0F
;1C8A AA TAX
;1C8B BD 3E 1E LDA $1E3E,X
;1C8E 8D AF 1C STA $1CAF
;1C91 BD 40 1E LDA $1E40,X
;1C94 8D B0 1C STA $1CB0
;1C97 BD 42 1E LDA $1E42,X
;1C9A 8D B7 1C STA $1CB7
;1C9D BD 44 1E LDA $1E44,X
;1CA0 8D B8 1C STA $1CB8
;1CA3 A6 FF LDX $FF
;1CA5 BD 42 21 LDA $2142,X
;1CA8 C9 0F CMP #$0F
;1CAA B0 34 BCS 1CE0
;1CAC AA TAX
;1CAD CA DEX
;1CAE BD 56 1E LDA $1E56,X
;1CB1 A4 FF LDY $FF
;1CB3 99 79 21 STA $2179,Y
;1CB6 BD 46 1E LDA $1E46,X
;1CB9 8D 68 21 STA $2168
;1CBC AD 53 21 LDA $2153
;1CBF 29 10 AND #$10
;1CC1 F0 0C BEQ 1CCF
;1CC3 A6 FF LDX $FF
;1CC5 BD 30 21 LDA $2130,X
;1CC8 18 CLC
;1CC9 6D 68 21 ADC $2168
;1CCC 4C 42 1D JMP $1D42
;1CCF AC 56 21 LDY $2156
;1CD2 AD 68 21 LDA $2168
;1CD5 18 CLC
;1CD6 69 0D ADC #$0D
;1CD8 99 01 D4 STA $D401,Y
;1CDB A9 00 LDA #$00
;1CDD 99 00 D4 STA $D400,Y
;1CE0 4C 52 1D JMP $1D52
;1CE3 AD 55 21 LDA $2155
;1CE6 29 80 AND #$80
;1CE8 F0 34 BEQ 1D1E
;1CEA A6 FF LDX $FF
;1CEC AC 56 21 LDY $2156
;1CEF BD 42 21 LDA $2142,X
;1CF2 C9 02 CMP #$02
;1CF4 B0 14 BCS 1D0A
;1CF6 A9 48 LDA #$48
;1CF8 99 01 D4 STA $D401,Y
;1CFB A9 00 LDA #$00
;1CFD 99 00 D4 STA $D400,Y
;1D00 A6 FF LDX $FF
;1D02 A9 81 LDA #$81
;1D04 9D 79 21 STA $2179,X
;1D07 4C 52 1D JMP $1D52
;1D0A BD 3C 21 LDA $213C,X
;1D0D 99 00 D4 STA $D400,Y
;1D10 BD 36 21 LDA $2136,X
;1D13 99 01 D4 STA $D401,Y
;1D16 BD 2D 21 LDA $212D,X
;1D19 29 FE AND #$FE
;1D1B 9D 79 21 STA $2179,X
;1D1E AD 55 21 LDA $2155
;1D21 29 04 AND #$04
;1D23 F0 2D BEQ 1D52
;1D25 DE 61 21 DEC $2161,X
;1D28 10 05 BPL 1D2F
;1D2A A9 02 LDA #$02
;1D2C 9D 61 21 STA $2161,X
;1D2F A6 FF LDX $FF
;1D31 BD 61 21 LDA $2161,X
;1D34 AA TAX
;1D35 BD 86 1E LDA $1E86,X
;1D38 85 41 STA $41
;1D3A A6 FF LDX $FF
;1D3C BD 30 21 LDA $2130,X
;1D3F 18 CLC
;1D40 65 41 ADC $41
;1D42 AA TAX
;1D43 AC 56 21 LDY $2156
;1D46 BD 64 1D LDA $1D64,X
;1D49 99 00 D4 STA $D400,Y
;1D4C BD C4 1D LDA $1DC4,X
;1D4F 99 01 D4 STA $D401,Y
;1D52 A6 FF LDX $FF
;1D54 AC 56 21 LDY $2156
;1D57 BD 79 21 LDA $2179,X
;1D5A 99 04 D4 STA $D404,Y
;1D5D CA DEX
;1D5E 30 03 BMI 1D63

```

```

;1D60      4C 45 18      JMP $1845
;1D63      60          RTS
...

;2000      A2 01          LDX #$01
;2002      8E 74 21      STX $2174
;2005      AA          TAX
;2006      BD D0 20      LDA $20D0,X
;2009      85 2C          STA $2C
;200B      BD D3 20      LDA $20D3,X
;200E      85 2D          STA $2D
;2010      A0 05          LDY #$05
;2012      B1 2C          LDA ($2C),Y
;2014      99 A1 1E      STA $1EA1,Y
;2017      88          DEY
;2018      10 F8         BPL 2012
;201A      4C 08 21      JMP $2108
...

;2030      AD 53 21      LDA $2153
;2033      F0 13         BEQ 2048
;2035      4A          LSR
;2036      4A          LSR
;2037      4A          LSR
;2038      4A          LSR
;2039      AA          TAX
;203A      AD 53 21      LDA $2153
;203D      29 0F         AND #$0F
;203F      8D 88 1E      STA $1E88
;2042      8E 87 1E      STX $1E87
;2045      4C DC 1A      JMP $1ADC
;2048      A9 18         LDA #$18
;204A      A2 0C         LDX #$0C
;204C      D0 F1         BNE 203F
...

;20D9      A9 00          LDA #$00
;20DB      A2 62          LDX #$62
;20DD      9D 21 21      STA $2121,X
;20E0      CA          DEX
;20E1      10 FA         BPL 20DD
;20E3      A9 B0          LDA #$B0
;20E5      8D 72 21      STA $2172
;20E8      A9 00          LDA #$00
;20EA      8D 42 21      STA $2142
;20ED      8D 43 21      STA $2143
;20F0      8D 44 21      STA $2144
;20F3      A2 02          LDX #$02
;20F5      9D 21 21      STA $2121,X
;20F8      9D 24 21      STA $2124,X
;20FB      9D 27 21      STA $2127,X
;20FE      9D 30 21      STA $2130,X
;2101      CA          DEX
;2102      10 F1         BPL 20F5
;2104      8D 74 21      STA $2174
;2107      60          RTS
;2108      20 D9 20      JSR $20D9
;210B      A2 00          LDX #$00
;210D      8A          TXA
;210E      2C 00 D4      BIT $D400
;2111      E8          INX
;2112      E0 18         CPX #$18
;2114      D0 F8         BNE 210E
;2116      60          RTS
;2117      A9 02          LDA #$02
;2119      8D 74 21      STA $2174
;211C      60          RTS

```

In the code, blue is the address for *OrderPos*, purple is the address of *SecPos*, red is the color of instructions used for the pattern, green are the marks indicator. The best way for finding what addresses are *OrderPos* and *SecPos* is to search for the mark indicator (\$FF, \$FE), as they are very commons.

We see that the engine is detected only by fee bytes located in the beginning of the file. In particular, it is used a low byte of an LDA instruction: as the tune can be relocated, using even the high byte cannot detect all the tunes. Note, also, that it is used a low byte of a relocated tune, but it is quite common that a low byte stay the same, as usually the tunes are relocated in step of \$100 bytes. However, the new study under patter searching we are applying is to be more accurate into relative offset by using the actual Program Counter register for determining the real address. But this is all being tested, so we can eventually see it in the future.

Conclusion

What we can say about this database?

It has a wonderful potential, but unfortunately too much engines are recognized with only 4 IDs (like in the above example), as the pattern derives from the AMS database. These can produce many false detections if you use a one by one step in searching.

However don't worry, we are working in made the database more reliable extending his syntax (for example for determining relative address in instructions) and by making some automatic tools that can suggest an usable pattern.

One of the most important point is that the Simon White scanner being developed is able to scan all the HVSC for 450 engines in less than 5 seconds!

Expect more information about engines as soon as the new database will be ready.

Finally, you can look at <http://www.unreal64.net> for the Lada player that is actually the unique one that take use of the database.

If you want to see the latest database for contributing in add new engines or fixes already present engines email Ray for having it (the database is released under GPL license for allowing contribution from everyone).

High Voltage Music Engines Collection

by Stefano Tognon <ice00@libero.it>

HVMEC is a new project I started after going into engines searching task. The name I choose is very similar to HVSC (High Voltage Sid Collection), but the porpoise is very different.

In HVMEC possibly all music engines making tools are collected, so one people can easy search for a particular one. Else, many credits information are given, so this can be a good place for historical engines conservation.

Is this so useful? Well, probably the best place where collect these tools is by adding entries in CSDb database. However I think that the possibility of searching for a tools in off-line mode is more evaluable, and it should be more complete if more related stuff (like sources, documentation, ...) are collected too.

So, this could be a good reason for starting this project and else in some discussion board, this idea was even proposed some times ago.

The main reason is however that I always like to know how a sid tune is made and knowing the used sid engines can be a good street to achieve that.

HVMEC Structure

The HVMEC is composed by two main directory:



DATA and CONTROL have then the same sub organization, but they contain different stuff:

- DATA: contains all binary, documentations, sources, examples of one music engine.
- CONTROL: contains HTML pages that describe the particular engine (we see all this later).

This division is a precise choice: as you can imagine, DATA is subject to reach many megabyte of space, while CONTROL will remain very little.

So, the off-line version of the collection is available always in two package ¹:

1. HVMEC- x.x-DATA.zip.gz
2. HVMEC- x.x-CONTROL.zip.gz

One people can so download only the CONTROL package to see all the collected engines and eventually download the DATA package for having all the engines, or only download a particular engine by follow the link in the on-line version of the collection.

The x.x is the version of the collection like 0.1, 0.2.

¹ The package will be more because I will add a maximum 1MB for a downloaded file. In this case you will see more file called DATA and CONTROL

Editor vs Tracker

Each DATA and CONTROL directory are divided like this:



Why this division?

It is a my choice for try to divide that engines into two main category:

1. Editor: a program where note duration is explicitly declared
2. Tracker: a program where note duration is not explicitly declared

So the type 1 category is where you have some instruction to declare the duration of the followed notes like DUR 05 in the pattern, when in the tracker the duration is given by the number of events between two notes.

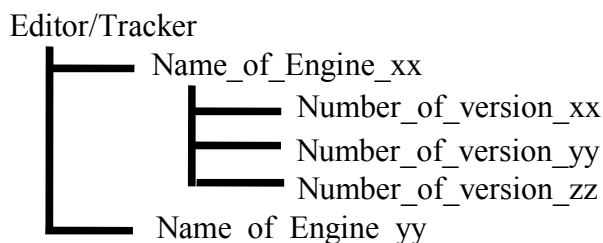
This table should show what I mean with an example of 3 notes with different duration:

<i>Editor</i>	<i>Tracker</i>
	A4

DUR 03	---
A4	B4
B4	---
DUR 02	---
G4	G4

Engines

Each *Editor* and *Tracker* directory are now with the same structure:



There are so the names of the engines like *Advanced_Music_Programmer*, *SIDwinder*, ... and inside them, the number of version of the editor, like *1.00*, *1.10*, *v1*, *v2*, *A*, *B*, ...

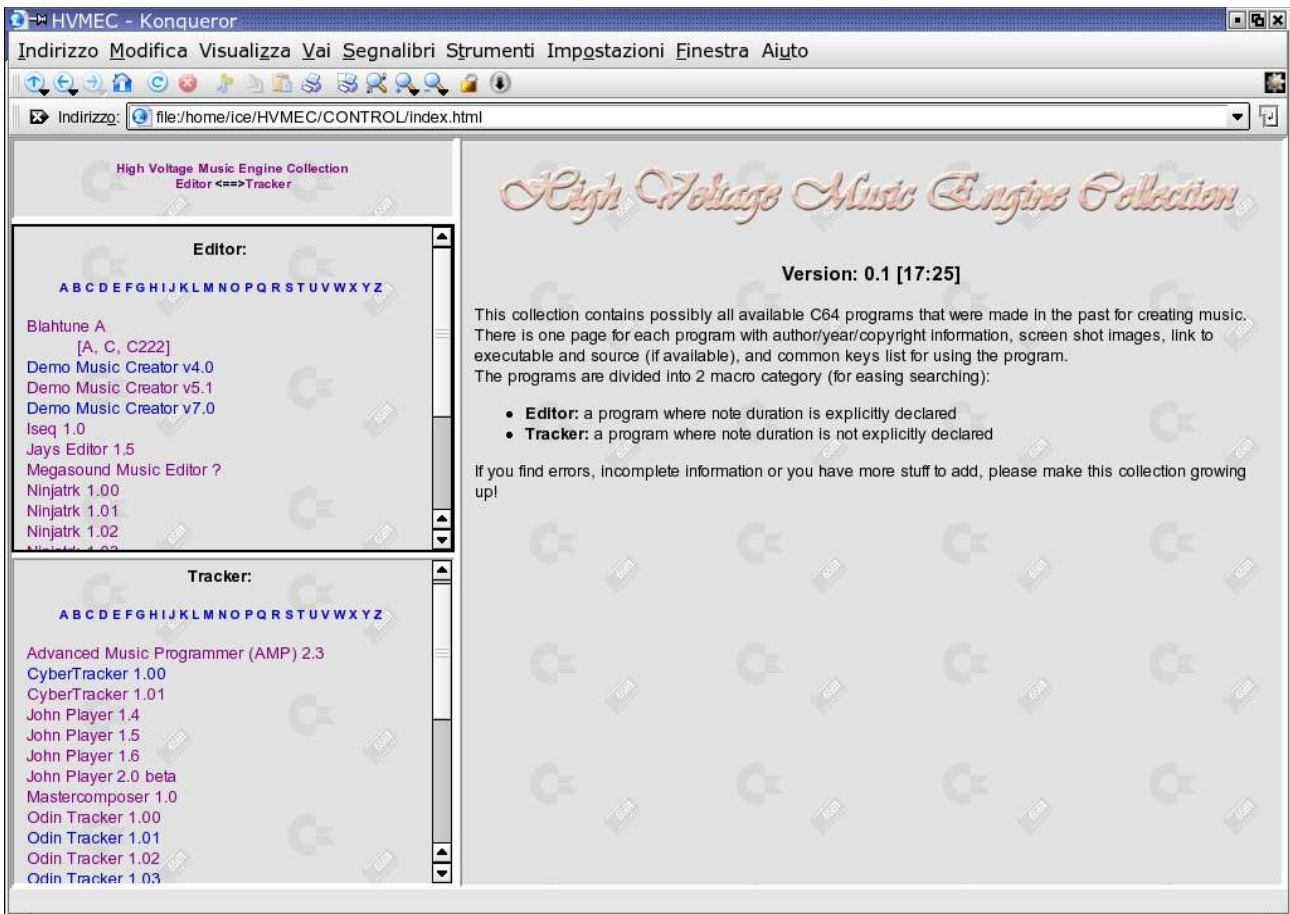
Sometimes other numbers like *[1x]*, *[2x]*, *[4x]*, ... are added to the version if the editor was provid-

ed for different tunes speed.

Finally, inside the version directory there are the programs, data, documentations, examples of the editor into the DATA base directory, and simple html pages and images into the CONTROL base directory.

Surfing the HVMEC

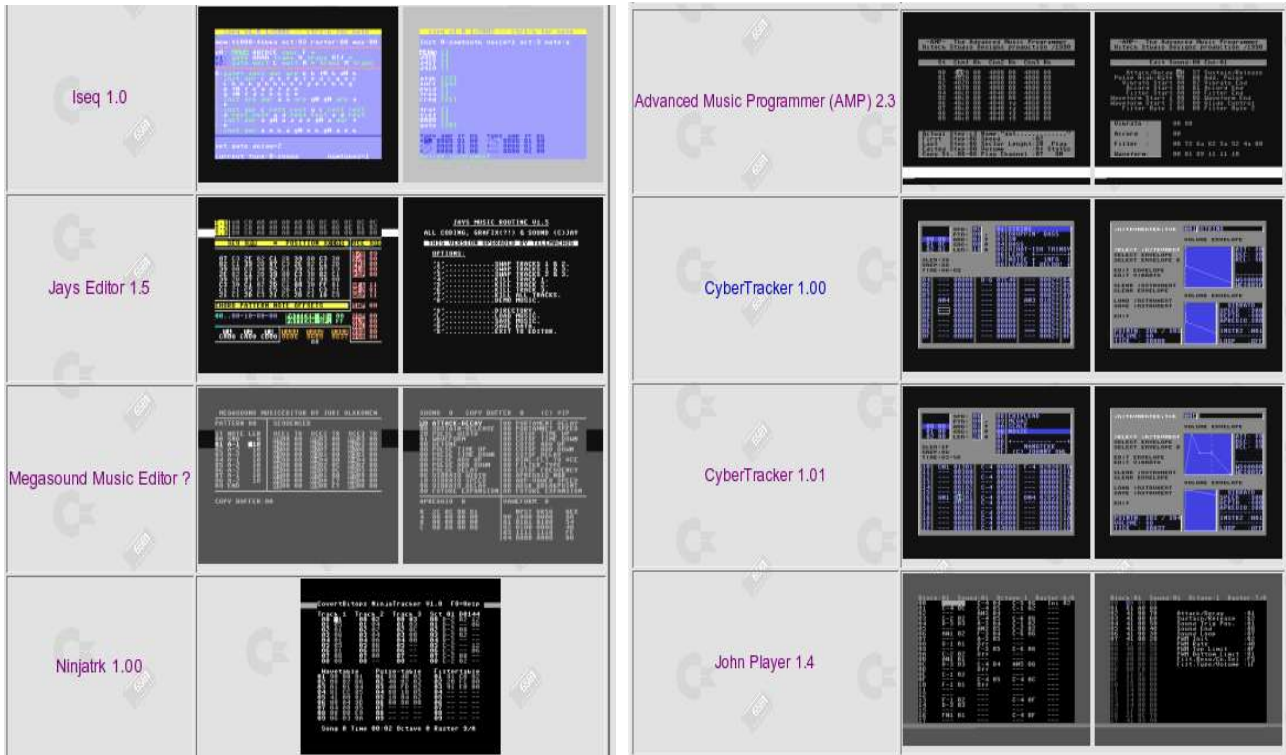
If you click to the *index.html* file into the CONTROL directory, you will see the HTML version of the collection. The layout is based onto frames:



- The top-left frame contains some links:
 - *High Voltage Music Engines Collection*: point the browser to the main page with the brief description of the collection.
 - *Editor*: point the browser to the complete list of Editor with some mini images of them
 - *Tracker*: point the browser to the complete list of Tracker with some mini images of them
- The center-left frame: contains the alphabetic list of editor engines link: clicking in one you will see the description page of that editor.
- The down-left frame: contains the alphabetic list of tracker engines link: clicking in one you will see the description page of that tracker.
- The main right frame: contains the page that a link in the previous frames point to.

For example, here you can see what happens where you press the Editor/Tracker into the upper-

left frame:



Players

HVMEC handles even the different player routines an editor can use. For examples you know that JCH editor can use different player routines. In this cases, in HVMEC there is a directory called [] where there are the version numbers of an editor/tracker. Inside it there are all the versions of the player routines in the DATA directory, while in CONTROL there is a simple HTML page that contains the description of each routines, like in this example:

Tunessmith Players					
Version	Year	Image	Source	For Editor	Description
A	1996	C64 prg image	C64 source	Blahtune A Tunessmith B	Base player: efficient, but not to use with raster routine as has some problems when process not notes data instructions
C	1997	C64 prg image	C64 source	Blahtune A Tunessmith B	Look ahead for not notes data instructions at each tick for removing the raster problem
C222	1997	C64 prg image	C64 source	Blahtune A Tunessmith B	Look ahead for not notes data instructions more that one times for each ticks for removing the raster problem
D	1998	C64 prg image	C64 source	Tunessmith B	Like C222, but implements more new instructions

Location

I like to spend some words about where you can find the HVMEC.

I think that the best mode is that you bookmark this link:

<http://digilander.iol.it/ice00/tsid/hvmec.html>

because here you will find all the links to the on-line and off-line version of the collection.

In fact, as the collection will grow to many megabyte, I have found some free alternative web-space onto where place the material, and they are subject to change as soon as more space will be needed.

The other thing is that usually the free web-space did not allow to put executable program into ZIP files, probably to avoid illegal sharing of copyrighted material, so big zip stored into the host will make suspicious the provider and there is a high probability that the account will be disabled!

All the C64 executables that are into the collection are taken by surfing the web and I hope that they are provided by the authors for free download. However, if you find that a particular file in HVMEC cannot be freely downloaded, please let me know for removing it from the collection.

Finally, if you have the challenge of having free web space for mirroring or hosting the collection, your help is welcome.

Next versions

Next versions of HVMEC will be released when many new engines will be added and/or many credits and errors will be fixed, or maybe before a harddisk crash may destruct the already done work!

If you want to know what work is already done, a special page is present in the download page, so you can figure what is missed and what will be in the next version.

Else I think to include a new "sample" category for let an easy search for engines that can be used even for making sample based sound.

Conclusion

If you like this new collection, there are many tasks you can do for helping:

- Send binary/sources/documentation of tools you have
- Correct/Improve credits about the already present engines
- Create HTML related stuff of not yet present tools

Otherwise I hope that by looking to the collection you can find the tool you need for starting making sid music into your C64, or that you can use the players for founding the right pattern for the pattern searching engine project.

QED *5 end*